Claims

1. Method for detecting nucleic acids in a sample comprising the steps:
   (a) purifying the nucleic acids in a binding space during which the nucleic acids are immobilized and impurities are separated,
   (b) eluting the immobilized nucleic acids,
   (c) amplifying the purified nucleic acids in an amplification space and
   (d) detecting the amplification products in a detection space

   wherein

   the amplification space contains at least a part of the binding space.

2. Method as claimed in claim 1,

   wherein

   the detection space contains at least a part of the amplification space or/and at least a part of the binding space.

3. Method as claimed in claim 1 or 2,

   wherein

   an at least partial capillary space is used as the binding space or/and amplification space.

4. Method as claimed in one of the previous claims,

   wherein

   nucleic acids are adsorbed to a glass surface in step (a).

5. Method as claimed in one of the previous claims, **wherein** a solution is used for the elution in step (b) which contains all reagents required for the amplification.

6. Method as claimed in one of the previous claims, **wherein** the amplification space can be thermostatted.

7. Method as claimed in claim 6, **wherein** the amplification space is surrounded by a heatable metal layer.

8. Method as claimed in one of the previous claims, **wherein** samples containing nucleic acids are lysed in step (a) before purification of the nucleic acids.

9. Method as claimed in one of the previous claims, **wherein** the sample contains cells.

10. Method as claimed in claim 9, **wherein** the cells are bound to a polystyrene surface.

11. Method as claimed in one of the previous claims, **wherein** the purification of the nucleic acids, the amplification of the purified nucleic acids and the detection of the amplification products are carried

out in the same reaction space.

12. Method as claimed in one of the previous claims,
wherein
all steps are carried out in a closed device.

13. Use of the method as claimed in one of the claims 1 to 12 to detect pathogens in biological samples.

14. Device for detecting nucleic acids in a sample, in particular by a method as claimed in one of the claims 1 to 12, comprising:
(a) a binding space to purify nucleic acids, in which the nucleic acids are immobilized and impurities are separated,
(b) an amplification space to amplify nucleic acids,
(c) a detection space to detect nucleic acids and optionally
(d) reservoirs or/and supply lines for the sample or/and reagents,
wherein
the amplification space contains at least a part of the binding space.

15. Device as claimed in claim 14,
wherein
the detection space contains at least a part of the amplification space or/and the binding space.

16. Device as claimed in claim 14 or 15,
wherein
the binding space or/and amplification space is at least partially in the form of a capillary space.

17. Method for lysing a matrix containing nucleic acids,
wherein
a lysis mixture containing the matrix containing nucleic acids and a lysis reagent is moved through a capillary space during which the matrix is disrupted and the nucleic acids contained therein are released.

18. Method as claimed in claim 17,
wherein
the matrix containing nucleic acids comprises cells or/and cell fractions.

19. Method as claimed in claim 17 or 18,
wherein
a lysis reagent is used which contains a lytic enzyme or/and a chaotropic substance.

20. Method as claimed in one of the claims 17 to 19,
wherein
the capillary space is a glass capillary or/and a polystyrene capillary.

21. Method as claimed in claim 20,
wherein
the capillary space is a capillary coated with boron silicate.

22. Method as claimed in one of the claims 17 to 21,
wherein
the sample is passed several times through the capillary space.

23. Method as claimed in one of the claims 17 to 22,
wherein
the volume ratio of lysis mixture to capillary space is larger than 10:1.

24. Method for isolating nucleic acids from microorganisms,
wherein
a sample containing microorganisms is contacted with a polystyrene surface under conditions in which the microorganisms bind to the polystyrene surface and other sample components are separated, and the nucleic acids are isolated from the microorganisms.

25. Method as claimed in claim 24,
wherein
a salt is additionally added to facilitate the binding of the microorganisms to the polystyrene surface.

26. Method as claimed in claim 24 or 25,
wherein
a polystyrene capillary is used.

27. Method as claimed in one of the claims 24 to 26,
wherein
the sample is passed several times over the polystyrene surface.

28. Method as claimed in one of the claims 24 to 27,
wherein
the microorganisms are Chlamydia.

29. Method as claimed in one of the claims 24 to 28,
wherein
urine is used as the sample.

30. Method as claimed in one of the claims 24 to 29,
wherein
a subsequent amplification of the isolated nucleic acids is carried out.

31. Method for the amplification of nucleic acids which comprises steps at different temperatures,
wherein
the amplification is carried out in a space which is surrounded by a heatable metal layer.

32. Method as claimed in claim 31,
wherein
the amplification is carried out in a capillary space.

33. Method as claimed in claim 31 or 32,
wherein
the whole surface of the space is surrounded by a metal layer.

34. Method as claimed in one of the claims 31 to 33,
wherein
a glass or/and polystyrene capillary is used which is surrounded by a heatable metal layer.

35. Capillary reaction vessel for amplifying nucleic acids which is surrounded by a heatable metal layer.